

MEMORANDUM

DATE: August 19, 2015

TO: Doug Schlepp
City of Issaquah

FROM: Jeff Schramm
TENW

SUBJECT: Issaquah Gateway Apartments:
Traffic Impact Analysis
TENW Project No. 4917

The purpose of this memorandum is to summarize the Traffic Impact Analysis (TIA) conducted for the proposed Issaquah Gateway Apartments project located on Newport Way NW. The analysis is presented consistent with the City's adopted Guidelines for preparation of a TIA and supplements the City's recently adopted Transportation Concurrency and multi-modal transportation impact fees.

TIA Guidelines

A TIA is required by the City to evaluate the impacts of proposed land use developments on the existing transportation network and to identify consistent and appropriate mitigation measures. This TIA was prepared to be consistent with the City's TIA Guidelines newly-adopted April 8, 2015.

A TIA is required for developments generating 30 or more peak hour trips to the transportation system. A preliminary transportation assessment and concurrency application for the Gateway Apartments were previously provided to the City on April 24, 2015.

The City recently conducted a City-wide transportation concurrency assessment for system-wide concurrency intersections that accounted for future planned growth. The mitigation for the planned growth is payment of a transportation impact fee that is used by the City to administer transportation improvements to accommodate the planned growth. As a result, a system-wide intersection capacity analysis is not required for individual developments as long as the type, amount, and location of a proposed development is consistent with the City's future planned growth. The proposed Gateway Apartments project is consistent with the City's future planned growth in the Central Issaquah Plan.

Further, the City-wide concurrency assessment does not negate the need for a localized analysis of traffic impacts in the immediate vicinity of a development project's site access, and/or other non-motorized, safety, geometric, construction, or non-motorized impacts. As such, it is the intent of this TIA document to provide a localized analysis of traffic impacts of the proposed Gateway Apartments project on Newport Way NW.

The remainder of this TIA document provides the localized traffic impact analysis and identifies measures to mitigate traffic impacts of the proposed Gateway Apartments project on Newport Way NW. Measures used to evaluate traffic impacts include trip generation; intersection LOS, delays, and queues; safety, channelization and frontage, site access control, neighborhood impacts, and impacts to bikes/pedestrians.

Project Description

The proposed 400-unit Gateway Apartments site is located on the north side of Newport Way NW directly across from an existing residential access for Spyglass Hill at NW Pacific Elm Drive as shown in Figure 1. The primary vehicle access to the site is proposed via a single access intersecting with Newport Way NW across from the existing Spyglass Hill residences and access driveway at NW Pacific Elm Drive. A secondary emergency-only access is also proposed at a separate location through the Rawley site.

Trip Generation

The trip generation estimate for the proposed Gateway Apartments development was based on the methodology included in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th edition for Land Use Code (LUC) 220 (Apartments). The resulting weekday daily, AM, and PM peak hour trip generation associated with the proposed project is summarized in Table 1.

Table 1
Trip Generation Summary – Gateway Apartments

Time Period	Net Trips Generated		
	In	Out	Total
Weekday Daily	1,325	1,325	2,650
Weekday AM Peak Hour	41	162	203
Weekday PM Peak Hour	160	87	247

As shown in Table 1, the proposed project is estimated to generate 2,650 net new weekday daily trips, with 203 net new trips occurring during the weekday AM peak hour (41 entering, 162 exiting) and 247 net new trips occurring during the weekday PM peak hour (160 entering, 87 exiting).

The traffic volumes used in this TIA were based on daily traffic counts conducted Tuesday July 28 to Thursday July 30, 2015, and AM and PM peak hour turning movement counts conducted on Wednesday July 29, 2015 at the Newport Way intersection with NW Pacific Elm Drive – the location of the proposed access. Because the recent counts were conducted outside of the school year, a seasonality adjustment was made to the counts. This adjustment was based on the comparison of AM and PM peak hour counts conducted in November 2014 at the same intersection, to the recent peak hour counts conducted for this analysis. Based on this comparison, a 10 percent seasonality factor (increase) was used to estimate existing traffic volumes during the school year.

To estimate future traffic volumes on Newport Way that include known and anticipated growth from pipeline development in the area, a 2 percent annual growth rate was applied to the existing volumes along with the seasonality adjustment. Weekday AM and PM peak hour Gateway Apartments project trips were added to the 2018 baseline volumes, resulting in an estimated year 2018 daily and peak hour traffic volumes when the Gateway project is expected to be open. A summary of the daily and peak hour traffic volumes used in the intersection LOS analyses are provided in Figure 2. Detailed traffic count information is provided in Attachment A.

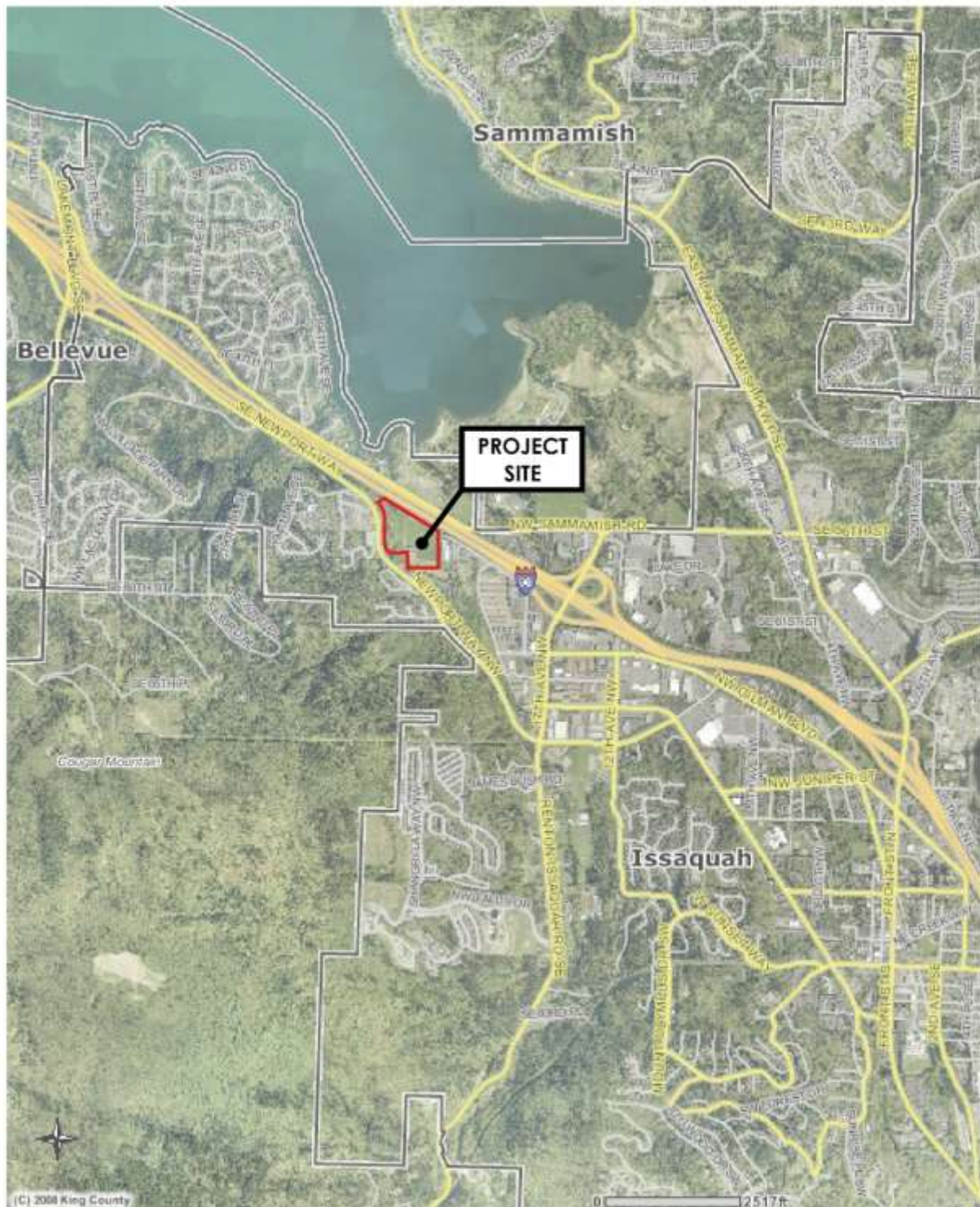


Figure 1: Site Vicinity



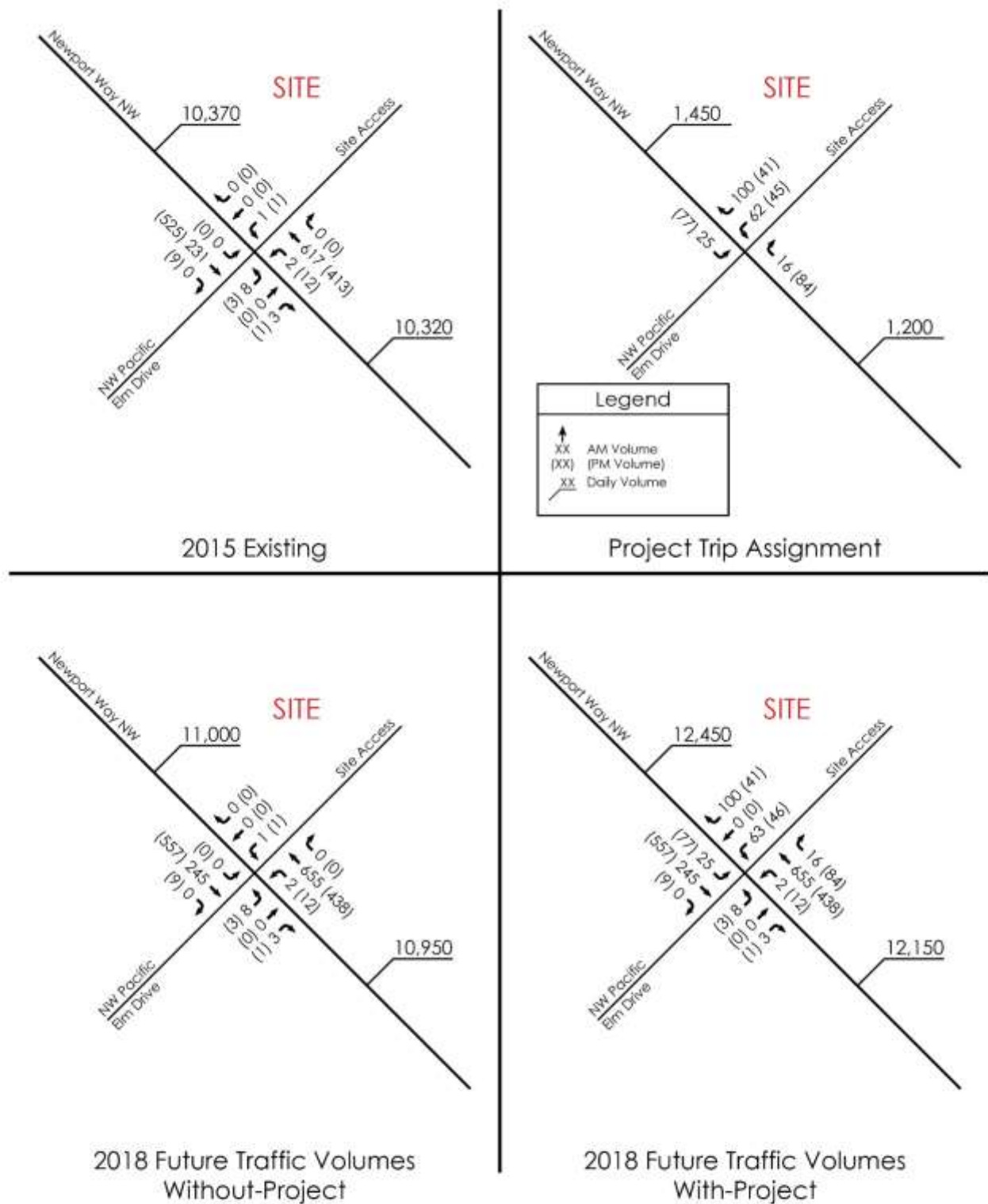


Figure 2: Daily, AM, and PM Peak Hour Traffic Volumes

Intersection LOS

The City's adopted standard is LOS D consistent with the latest edition of the *Highway Capacity Manual*. According to the City's TIA Guidelines, a development that exceeds the maximum allowable delay at a driveway or local roadway not included in the City's transportation concurrency analysis is considered as having a probably significant adverse impact and will be required to mitigate that impact.

Weekday AM and PM peak hour LOS, delays, and queues were evaluated at the intersection of the proposed access onto Newport Way NW at NW Pacific Elm Drive. LOS and queues were evaluated for future with-project conditions in 2018 assuming stop signs controlling the side-street turns. The results of the analysis are summarized in the Table 2 below. Detailed LOS results are provided in Attachment B.

Table 2. Site Access LOS with Stop Control – Newport Way NW / NW Pacific Elm Drive

Location / Approach	Weekday AM Peak Hour			Weekday PM Peak Hour		
	LOS ¹	Delay ² (sec/veh)	95 th % Queue ³	LOS	Delay (sec/veh)	95 th % Queue
<u>From Gateway Apartments:</u>						
SB Left-Turn	D	31.4	1 veh.	F	60.2	2 veh.
SB Shared Thru-Right	C	16.2	2 veh.	B	11.9	1 veh.
<u>From Spyglass Residences:</u>						
NB Approach	D	26.0	1 veh.	D	34.4	1 veh.
<u>On Mainline Newport Way:</u>						
EB Left-Turn	A	9.2	1 veh.	A	8.7	1 veh.
WB Left-Turn	A	7.8	<1 veh.	A	8.9	<1 veh.

1. LOS = Level of Service.

2. Delay refers to average control delay in seconds per vehicle

3. 95th percentile queues represent maximum queues that occur during the peak hours.

As shown in Table 2, side-street turns from the proposed site access (Gateway) onto Newport Way are anticipated to operate at LOS D in the AM peak hour and LOS F in the PM peak hour. As a result, and consistent with City TIA Guidelines, the proposed project would have a probably significant adverse impact and will be required to mitigate the impact. Both signalization and roundabout control were considered, which are described in next section.

Future Site Access Traffic Control

As a result of the LOS F operation anticipated during the weekday PM peak hour at the site access location on Newport Way, both signalized and roundabout control were considered as mitigation for traffic impacts of the Gateway Apartments project at this location.

Signal Warrant Evaluation

A comprehensive traffic signal warrant analysis was conducted based on year 2018 buildout conditions with the Issaquah Gateway project using a 2 percent annual growth factor from counts conducted in 2015 counts. Because the speed study results showed that the existing 85th-percentile speeds on Newport Way are currently greater than 40 mph (measured 45 mph), multiple MUTCD signal warrants would be met based on the existing posted speed limit at the proposed site access intersection. The signal warrant analysis utilized MUTCD criteria allowing 70 percent of the threshold traffic volumes with 85th-percentile travel speeds exceeding 40 mph.

Weekday AM and PM peak hour LOS analyses with and without signalization are summarized in Table 3 below and Attachment B. With signalization and the proposed frontage improvements, the intersection is anticipated to operate at LOS A during the AM and PM peak hours.

It should also be noted that the City expects to lower the posted speed on this section of Newport Way to 30 mph or 35 mph in the near future. As a result, vehicle travel speeds along this corridor may be reduced to less than 40 mph. If travel speeds along Newport Way at the location of the proposed access were less than 40 mph, then it is likely that the side-street volumes would not be high enough to meet MUTCD signal warrants. The detailed signal warrant analysis results are provided in Attachment C.

Roundabout Evaluation

Evaluation of the site access intersection on Newport Way at Pacific Elm Drive also considered control with a single-lane roundabout (RAB). A single-lane RAB would reduce speeds for travel along Newport Way and provide for improved peak hour LOS and reduced delays for traffic from the side-streets to Newport Way. The RAB would provide marked pedestrian crossings on all 4 legs of the intersection.

With a RAB, the intersection is anticipated to operate at LOS B during the AM and PM peak hours based on use of Sidra 6.1 software. The RAB LOS analysis results are summarized in Table 3 below and with details calculations provided in Attachment B.

LOS Summary

Table 3 on the next page summarizes the LOS at the Gateway site access intersection with Pacific Elm Drive for the 3 different intersection control options (stop signs, signalization, RAB). Overall intersection LOS and delays are provided in Table 3 along with the side-street LOS and delays for the Gateway project and from Spyglass residents on Pacific Elm Drive. The LOS analysis were based on future year 2018 (anticipated year of opening for Gateway project) traffic volume projections, 40 mph speed, and future channelization and frontage improvements with the Gateway project.

Table 3. Site Access Peak Hour LOS Summary

Location / Approach	Side-Street Stop Signs		Signalization		Roundabout	
	LOS ¹	Delay ²	LOS	Delay	LOS	Delay
AM Peak Hour:						
Overall Intersection:	A	3.7	A	6.3	B	11.5
From Gateway:						
SB Left-Turn	D	31.4	B	11.4	B	11.6
SB Thru-Right	C	16.2	B	12.4		
From Spyglass:						
NB Approach	D	26.0	B	11.1	A	4.8
On Newport Way:						
EB Left-Turn	A	9.2	A	8.9	B	13.6
WB Left-Turn	A	7.8	A	4.5	A	6.3
PM Peak Hour:						
Overall Intersection:	A	3.3	A	5.2	B	13.4
From Gateway:						
SB Left-Turn	F	60.2	B	11.2	A	7.2
SB Thru-Right	B	11.9	B	11.5		
From Spyglass:						
NB Approach	D	34.4	B	10.9	A	7.2
On Newport Way:						
EB Left-Turn	A	8.7	A	6.5	B	11.9
WB Left-Turn	A	8.9	A	7.3	C	15.4

1. LOS = Level of Service.

2. Delay refers to average control delay in seconds per vehicle.

Channelization & Frontage

Consistent with City road standards and the *Central Issaquah Plan*, the Gateway Apartments project will widen the north side of Newport Way along its property frontage to provide new half-street improvements. These include road widening to accommodate a new 12-foot-wide center turn lane, 5-foot bicycle lane, 5-foot landscape strip, and 10-foot shared multimodal path.

The need for both left-turn and right-turn lanes were also evaluated at the site access location on Newport Way. With signalization, a new right-turn lane would be provided in the westbound direction with a 100-foot pocket and 44-foot taper (4:1). Widening to include a center turn lane is also planned with the signal to accommodate the additional traffic generated by the Gateway Apartments project, and to improve safety by removing eastbound left-turning traffic from the through travel lane. A complimentary left-turn lane would be provided for the Spyglass Hill at NW Pacific Elm Drive site access as well. The center turn lane along Newport Way is a programmed improvement in the City's six-year Transportation Improvement Plan (TIP).

With a roundabout at the proposed access, single-lane approaches would be provided while also maintaining the required frontage improvements. No additional widening for left-turn or right-turn lanes would be provided with the single-lane RAB control.

Safety

According to the City's TIA Guidelines, the addition of 10 or more peak hour trips to a High Accident Location (HAL) will be considered a probably significant adverse impact. When a development proposal impacts a HAL, the City may require reasonable mitigation even if the LOS thresholds are not exceeded. The City may also consider other safety threshold requirements.

At the time of this TIA, it was not known whether the City has designated this section of Newport Way as a HAL. The proposed Gateway Apartments project will add more than 10 peak hour trips to Newport Way.

The current posted speed along this section of Newport Way is 40 mph. The City is considering reducing the posted speed on this section of NW Newport Way to 30 or 35 mph in the near future between SR-900 and 54th Street in the project vicinity.

Neighborhood Impacts

In the project vicinity, Newport Way is currently 2-lane minor arterial road located on the south side of I-90 that carries traffic between Lakemont Boulevard (in Bellevue to the west) and SR-900 to the east. There are turn lanes provided at a few locations with intersections serving residential developments. The posted speed is 40 mph, but is expected to be reduced to 30 or 35 mph.

The *Central Issaquah Plan* identifies this section of Newport Way as a "Parkway" that will include a center turn lane with bicycle lanes maintained on both sides. The addition of a center turn lane on Newport Way will provide about 40 percent additional capacity¹ compared to a 2-lane road, as well as safer travel allowing turning vehicles a separate turn lane from through traffic.

The location of the proposed access for Gateway Apartments would occur on the north side of Newport Way NW directly across from an existing residential access for Spyglass Hill at NW Pacific Elm Drive. There currently is a short eastbound right-turn lane on Newport Way at this access location for traffic into Pacific Elm Drive. With signalization at this intersection, the eastbound right-turn lane would be maintained, along with the addition of a center turn lane and westbound right-turn lane into the Gateway Apartments project site. With a RAB, the right-turn and left-turn lanes would be eliminated at this intersection and all legs would have single-lane approaches.

The future frontage and road section required for the Gateway project includes a 10-foot wide multimodal path along the northerly property, together with a landscape stripe separating the trail from the on-street bicycle lane and west-bound travel lanes. Where a center turn lane is not required, a landscape median would separate the east-bound travel and bike lanes. A 10-foot travel lane is proposed to promote slower speeds along the corridor, together with 5-foot bike lanes.

¹ Source: *King County Roadway Link Capacity Values*. 2-lane urban road has 13,200 ADT two-way capacity and 760 peak hour one-way capacity. 3-lane urban road has 19,220 ADT two-way capacity and 1,030 peak hour one-way capacity.

The driveway serving the adjacent Sammamish Point Condos is located approximately 230 feet to the east. Future access control, whether it be signalization or a roundabout, will consider the location of this driveway to ensure that adequate provisions are made for inbound and outbound turning traffic to/from Newport Way. With signalization of the Gateway access at Pacific Elm Drive, full access may be maintained for all turning movements at the western Sammamish Point Condos access. With a roundabout, the Sammamish Point Condos west access may be limited to allow only right-in and right-out turn movements as a result of the roundabout design and required lane transitions. Inbound left-turns would need to re-route to the eastern access driveway, and outbound left-turns (wanted to head east) would be able to turn right and utilize the roundabout to travel east.

Pedestrian & Bicycle Impacts

The current posted speed on Newport Way west of SR-900 is 40 mph. The City is considering reducing the posted speed on the section of NW Newport Way between SR-900 and 54th Street to 30 or 35 mph. Bicycle lanes currently exist along both sides of Newport Way and would be maintained with future development and widening proposed at the site access intersection. The *Central Issaquah Plan* identifies this section of Newport Way as a "Parkway" that will include a center turn lane and maintain bicycle lanes on both sides.

The City has also recently commissioned a City-wide Pedestrian Crossing Study to evaluate priority public pedestrian crossings. One of the locations included in that study is Newport Way between 54th Street and SR-900. A recent fatality occurred on this section of Newport Way at the NW Oakcrest Drive intersection.

Currently at the intersection of Pacific Elm Drive there is not a marked crosswalk on Newport Way. Whether signalization or a roundabout is constructed at the location of the proposed access for the Gateway Apartments project, adequate facilities meeting City road standards and design requirements will be included that comprise a marked crosswalks on all 4 legs of the intersection. And bicycle lanes will be provided along both sides of Newport Way.

If you have any questions regarding the information presented in this analysis, please contact me at 425-250-0581 or schramm@tenw.com.

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Jeff Haynie, P.E. – TENW Principal
Chris Bicket, P.E. – TENW Design Manager

Attachments: A. Traffic Counts and Volume Estimates
B. LOS Analysis Results
C. Signal Warrant Analysis Results

ATTACHMENT A

Traffic Counts and Volume Estimates

All Traffic Data

6401 Lake Washington Blvd SE
 Newcastle, WA 98056
 425-228-0072
 www.alltrafficdata.net

Site Code: 1
 Date Start: 28-Jul-15
 NEWPORT WAY NW W/O NW PACIFIC ELM DR
 Station ID: 1
 Date End: 30-Jul-15

Start Time	27-Jul-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	9	16	14	9	15	23	*	*	*	*	*	*	13	16
01:00	*	*	5	4	7	8	6	6	*	*	*	*	*	*	6	6
02:00	*	*	2	4	5	3	5	3	*	*	*	*	*	*	4	3
03:00	*	*	5	5	1	5	1	2	*	*	*	*	*	*	2	4
04:00	*	*	3	11	5	16	10	12	*	*	*	*	*	*	6	13
05:00	*	*	24	36	21	29	27	35	*	*	*	*	*	*	24	33
06:00	*	*	68	211	79	209	77	212	*	*	*	*	*	*	75	211
07:00	*	*	156	549	158	493	152	496	*	*	*	*	*	*	155	513
08:00	*	*	214	622	228	535	247	545	*	*	*	*	*	*	230	567
09:00	*	*	218	458	206	382	234	356	*	*	*	*	*	*	219	399
10:00	*	*	199	220	167	262	191	263	*	*	*	*	*	*	186	248
11:00	*	*	218	265	210	247	249	264	*	*	*	*	*	*	226	259
12:00 PM	*	*	200	289	219	263	236	296	*	*	*	*	*	*	218	283
01:00	*	*	233	259	250	265	248	255	*	*	*	*	*	*	244	260
02:00	*	*	268	253	285	260	269	267	*	*	*	*	*	*	274	260
03:00	*	*	367	326	397	292	392	306	*	*	*	*	*	*	385	308
04:00	*	*	467	361	465	337	470	355	*	*	*	*	*	*	467	351
05:00	*	*	464	415	474	379	615	373	*	*	*	*	*	*	518	389
06:00	*	*	422	291	425	315	533	286	*	*	*	*	*	*	460	297
07:00	*	*	204	227	229	232	342	262	*	*	*	*	*	*	258	240
08:00	*	*	136	227	157	225	136	218	*	*	*	*	*	*	143	223
09:00	*	*	97	137	119	126	92	162	*	*	*	*	*	*	103	142
10:00	*	*	39	45	69	68	51	88	*	*	*	*	*	*	53	67
11:00	*	*	38	26	32	36	32	35	*	*	*	*	*	*	34	32
Lane	0	0	4056	5257	4222	4996	4630	5120	0	0	0	0	0	0	4303	5124
Day	0		9313		9218		9750		0		0		0		9427	
AM Peak	-	-	09:00	08:00	08:00	08:00	11:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	218	622	228	535	249	545	-	-	-	-	-	-	230	567
PM Peak	-	-	16:00	17:00	17:00	17:00	17:00	17:00	-	-	-	-	-	-	17:00	17:00
Vol.	-	-	467	415	474	379	615	373	-	-	-	-	-	-	518	389

Comb. Total 0 9313 9218 9750 0 0 0 9427

ADT ADT 9,427 AADT 9,427

All Traffic Data

6401 Lake Washington Blvd SE
 Newcastle, WA 98056
 425-228-0072
 www.alltrafficdata.net

Site Code: 1
 Date Start: 28-Jul-15
 NEWPORT WAY NW W/O NW PACIFIC ELM DR
 Station ID: 1
 Date End: 30-Jul-15

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
07/28/15	0	0	0	1	0	1	2	2	3	0	0	0	0	0	9	52	54
01:00	0	0	0	0	0	1	3	1	0	0	0	0	0	0	5	46	48
02:00	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	48	50
03:00	0	0	0	0	1	2	1	1	0	0	0	0	0	0	5	46	48
04:00	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3	49	50
05:00	0	1	0	0	6	4	10	3	0	0	0	0	0	0	24	45	47
06:00	0	0	0	0	4	23	19	17	4	1	0	0	0	0	68	48	52
07:00	7	1	0	1	5	45	72	21	3	1	0	0	0	0	156	45	49
08:00	12	2	2	1	10	61	99	26	1	0	0	0	0	0	214	45	48
09:00	6	3	1	0	20	65	85	29	8	1	0	0	0	0	218	46	50
10:00	4	0	0	4	16	60	79	31	5	0	0	0	0	0	199	46	49
11:00	3	0	0	2	24	68	90	29	2	0	0	0	0	0	218	45	48
12 PM	2	0	0	0	15	80	77	24	2	0	0	0	0	0	200	45	48
13:00	9	0	0	3	20	61	102	33	2	1	1	0	1	0	233	45	49
14:00	7	1	1	3	24	94	100	34	3	1	0	0	0	0	268	45	48
15:00	9	1	0	4	24	113	160	49	6	0	0	1	0	0	367	45	48
16:00	12	2	5	11	39	143	197	54	4	0	0	0	0	0	467	45	48
17:00	15	0	1	2	62	149	196	38	1	0	0	0	0	0	464	44	46
18:00	16	0	4	4	41	140	165	48	3	1	0	0	0	0	422	45	48
19:00	12	0	0	9	10	65	86	16	5	1	0	0	0	0	204	44	48
20:00	1	0	1	3	29	54	36	12	0	0	0	0	0	0	136	43	47
21:00	1	0	0	3	11	45	28	6	2	0	1	0	0	0	97	44	48
22:00	1	0	0	2	5	10	12	6	3	0	0	0	0	0	39	47	51
23:00	0	0	0	1	4	13	11	6	3	0	0	0	0	0	38	47	51
Total	117	11	15	54	370	1298	1631	489	60	7	2	1	1	0	4056		
Percent	2.9%	0.3%	0.4%	1.3%	9.1%	32.0%	40.2%	12.1%	1.5%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	08:00	10:00	11:00	11:00	08:00	10:00	09:00	06:00					09:00		
Vol.	12	3	2	4	24	68	99	31	8	1					218		
PM Peak	18:00	16:00	16:00	16:00	17:00	17:00	16:00	16:00	15:00	13:00	13:00	15:00	13:00		16:00		
Vol.	16	2	5	11	62	149	197	54	6	1	1	1	1		467		

All Traffic Data

6401 Lake Washington Blvd SE
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Site Code: 1
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Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
07/29/15	0	0	0	1	1	5	3	3	0	1	0	0	0	0	14	48	56
01:00	0	0	0	0	1	1	1	4	0	0	0	0	0	0	7	48	50
02:00	0	0	0	1	0	0	1	2	1	0	0	0	0	0	5	51	53
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	39	40
04:00	0	0	0	1	1	1	2	0	0	0	0	0	0	0	5	43	44
05:00	0	1	0	1	3	2	9	3	1	1	0	0	0	0	21	47	54
06:00	0	0	0	1	4	21	29	21	3	0	0	0	0	0	79	47	50
07:00	10	0	0	2	13	46	51	25	10	1	0	0	0	0	158	47	51
08:00	10	2	2	4	7	56	102	40	5	0	0	0	0	0	228	46	49
09:00	5	1	1	3	13	81	65	35	2	0	0	0	0	0	206	45	48
10:00	1	0	0	0	16	49	82	15	4	0	0	0	0	0	167	45	48
11:00	5	0	1	7	21	89	65	22	0	0	0	0	0	0	210	44	47
12 PM	7	0	2	4	31	80	71	22	2	0	0	0	0	0	219	44	47
13:00	8	1	2	2	30	83	100	19	5	0	0	0	0	0	250	44	47
14:00	6	0	0	2	42	94	109	28	4	0	0	0	0	0	285	44	48
15:00	7	1	1	11	39	119	169	46	4	0	0	0	0	0	397	45	48
16:00	10	0	2	6	27	114	208	91	7	0	0	0	0	0	465	46	49
17:00	12	0	2	6	34	148	196	73	3	0	0	0	0	0	474	45	48
18:00	9	1	1	6	23	139	195	48	3	0	0	0	0	0	425	45	48
19:00	4	0	4	3	7	73	101	29	7	1	0	0	0	0	229	45	49
20:00	5	1	3	4	13	57	48	22	3	1	0	0	0	0	157	45	49
21:00	0	0	0	5	19	39	39	12	5	0	0	0	0	0	119	45	49
22:00	0	0	0	3	11	24	25	5	1	0	0	0	0	0	69	44	47
23:00	0	0	0	0	6	8	9	9	0	0	0	0	0	0	32	47	49
Total	99	8	21	73	362	1330	1680	574	70	5	0	0	0	0	4222		
Percent	2.3%	0.2%	0.5%	1.7%	8.6%	31.5%	39.8%	13.6%	1.7%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	08:00	11:00	11:00	11:00	08:00	08:00	07:00	00:00					08:00		
Vol.	10	2	2	7	21	89	102	40	10	1					228		
PM Peak	17:00	13:00	19:00	15:00	14:00	17:00	16:00	16:00	16:00	19:00					17:00		
Vol.	12	1	4	11	42	148	208	91	7	1					474		

All Traffic Data

6401 Lake Washington Blvd SE
Newcastle, WA 98056
425-228-0072
www.alltrafficdata.net

Site Code: 1
Date Start: 28-Jul-15
NEWPORT WAY NW W/O NW PACIFIC ELM DR
Station ID: 1
Date End: 30-Jul-15

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
07/30/15	0	0	0	0	5	2	4	4	0	0	0	0	0	0	15	47	49
01:00	0	0	0	0	1	2	2	1	0	0	0	0	0	0	6	45	48
02:00	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5	48	50
03:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	54	55
04:00	0	0	0	0	2	1	3	4	0	0	0	0	0	0	10	48	49
05:00	0	1	0	0	5	3	12	6	0	0	0	0	0	0	27	46	49
06:00	0	0	1	2	3	10	39	18	4	0	0	0	0	0	77	47	50
07:00	6	1	0	0	9	49	59	20	7	1	0	0	0	0	152	46	50
08:00	12	2	4	2	26	69	99	30	2	1	0	0	0	0	247	45	48
09:00	9	0	2	4	17	73	96	29	4	0	0	0	0	0	234	45	48
10:00	6	0	1	5	16	73	65	25	0	0	0	0	0	0	191	45	48
11:00	5	0	0	3	29	102	79	25	6	0	0	0	0	0	249	44	48
12 PM	6	1	3	5	26	77	94	21	3	0	0	0	0	0	236	44	47
13:00	5	1	2	2	25	99	86	23	3	2	0	0	0	0	248	44	48
14:00	8	0	0	1	18	96	108	32	6	0	0	0	0	0	269	45	48
15:00	8	0	1	3	51	118	163	43	4	1	0	0	0	0	392	45	48
16:00	14	0	2	0	31	152	211	58	2	0	0	0	0	0	470	45	48
17:00	21	0	0	1	33	235	258	61	5	1	0	0	0	0	615	44	47
18:00	18	0	1	4	41	193	216	52	8	0	0	0	0	0	533	44	48
19:00	6	3	0	7	42	108	136	36	4	0	0	0	0	0	342	44	48
20:00	2	0	0	2	22	57	40	12	1	0	0	0	0	0	136	44	47
21:00	3	0	0	3	9	42	23	12	0	0	0	0	0	0	92	44	48
22:00	0	0	0	1	16	16	12	4	2	0	0	0	0	0	51	44	49
23:00	0	0	0	0	3	2	20	4	2	0	1	0	0	0	32	47	53
Total	129	9	17	45	430	1579	1827	523	64	6	1	0	0	0	4630		
Percent	2.8%	0.2%	0.4%	1.0%	9.3%	34.1%	39.5%	11.3%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	10:00	11:00	11:00	08:00	08:00	07:00	07:00					11:00		
Vol.	12	2	4	5	29	102	99	30	7	1					249		
PM Peak	17:00	19:00	12:00	19:00	15:00	17:00	17:00	17:00	18:00	13:00	23:00				17:00		
Vol.	21	3	3	7	51	235	258	61	8	2	1				615		
Grand Total	345	28	53	172	1162	4207	5138	1586	194	18	3	1	1	0	12908		
Percent	2.7%	0.2%	0.4%	1.3%	9.0%	32.6%	39.8%	12.3%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 34 MPH
50th Percentile : 40 MPH
85th Percentile : 45 MPH
95th Percentile : 48 MPH

Statistics
10 MPH Pace Speed : 37-46 MPH
Number in Pace : 8369
Percent in Pace : 64.8%
Number of Vehicles > 40 MPH : 6941
Percent of Vehicles > 40 MPH : 53.8%
Mean Speed(Average) : 39 MPH

All Traffic Data

6401 Lake Washington Blvd SE
 Newcastle, WA 98056
 425-228-0072
 www.alltrafficdata.net

Site Code: 2
 Date Start: 28-Jul-15
 NEWPORT WAY NW E/O NW PACIFIC ELM DR
 Station ID: 2
 Date End: 30-Jul-15

Start Time	27-Jul-15		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	9	15	15	9	11	23	*	*	*	*	*	*	12	16
01:00	*	*	5	4	7	8	6	6	*	*	*	*	*	*	6	6
02:00	*	*	2	4	5	3	5	3	*	*	*	*	*	*	4	3
03:00	*	*	5	5	1	5	1	2	*	*	*	*	*	*	2	4
04:00	*	*	3	11	5	15	8	11	*	*	*	*	*	*	5	12
05:00	*	*	24	35	22	27	27	33	*	*	*	*	*	*	24	32
06:00	*	*	66	205	78	201	71	209	*	*	*	*	*	*	72	205
07:00	*	*	159	540	157	493	155	489	*	*	*	*	*	*	157	507
08:00	*	*	218	604	232	531	246	539	*	*	*	*	*	*	232	558
09:00	*	*	211	461	212	378	244	361	*	*	*	*	*	*	222	400
10:00	*	*	196	214	171	257	187	267	*	*	*	*	*	*	185	246
11:00	*	*	217	257	210	248	242	264	*	*	*	*	*	*	223	256
12:00 PM	*	*	201	284	219	262	240	288	*	*	*	*	*	*	220	278
01:00	*	*	231	259	245	264	244	252	*	*	*	*	*	*	240	258
02:00	*	*	265	257	287	262	264	258	*	*	*	*	*	*	272	259
03:00	*	*	368	317	404	285	386	303	*	*	*	*	*	*	386	302
04:00	*	*	461	363	463	337	472	356	*	*	*	*	*	*	465	352
05:00	*	*	471	417	475	378	622	369	*	*	*	*	*	*	523	388
06:00	*	*	415	295	430	314	517	295	*	*	*	*	*	*	454	301
07:00	*	*	202	236	233	234	348	265	*	*	*	*	*	*	261	245
08:00	*	*	130	236	154	236	137	222	*	*	*	*	*	*	140	231
09:00	*	*	94	131	114	127	87	165	*	*	*	*	*	*	98	141
10:00	*	*	36	44	65	67	48	87	*	*	*	*	*	*	50	66
11:00	*	*	35	26	33	35	31	34	*	*	*	*	*	*	33	32
Lane	0	0	4024	5220	4237	4976	4599	5101	0	0	0	0	0	0	4286	5098
Day	0		9244		9213		9700		0		0		0		9384	
AM Peak	-	-	08:00	08:00	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	218	604	232	531	246	539	-	-	-	-	-	-	232	558
PM Peak	-	-	17:00	17:00	17:00	17:00	17:00	17:00	-	-	-	-	-	-	17:00	17:00
Vol.	-	-	471	417	475	378	622	369	-	-	-	-	-	-	523	388

Comb. Total 0 9244 9213 9700 0 0 0 9384

ADT ADT 9,386 AADT 9,386

All Traffic Data

6401 Lake Washington Blvd SE
 Newcastle, WA 98056
 425-228-0072
 www.alltrafficdata.net

Site Code: 2
 Date Start: 28-Jul-15
 NEWPORT WAY NW E/O NW PACIFIC ELM DR
 Station ID: 2
 Date End: 30-Jul-15

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
07/28/15	0	0	0	0	1	6	4	3	1	0	0	0	0	0	15	47	51
01:00	0	0	0	0	1	1	2	0	0	0	0	0	0	0	4	43	45
02:00	0	0	0	0	1	1	0	2	0	0	0	0	0	0	4	48	50
03:00	0	1	0	0	1	0	0	0	0	2	0	1	0	0	5	65	68
04:00	0	0	0	0	0	2	3	5	1	0	0	0	0	0	11	49	52
05:00	0	0	0	1	3	8	14	4	4	0	1	0	0	0	35	49	54
06:00	1	0	1	3	2	48	108	42	0	0	0	0	0	0	205	46	48
07:00	7	1	2	9	19	165	257	79	1	0	0	0	0	0	540	45	48
08:00	14	0	7	13	52	209	268	36	4	0	0	0	1	0	604	44	46
09:00	12	1	7	15	16	121	233	51	5	0	0	0	0	0	461	45	48
10:00	8	1	2	2	11	51	106	29	3	1	0	0	0	0	214	45	48
11:00	11	0	4	3	9	81	126	20	3	0	0	0	0	0	257	44	47
12 PM	17	3	3	4	9	82	130	32	3	1	0	0	0	0	284	45	48
13:00	7	3	2	6	21	87	101	31	0	0	0	1	0	0	259	45	48
14:00	10	1	5	6	16	76	116	22	4	1	0	0	0	0	257	44	48
15:00	13	1	4	10	11	81	160	35	1	1	0	0	0	0	317	45	47
16:00	14	3	10	4	25	111	150	43	2	1	0	0	0	0	363	45	48
17:00	25	1	6	14	10	120	197	41	3	0	0	0	0	0	417	44	47
18:00	18	0	3	4	16	83	129	40	2	0	0	0	0	0	295	45	48
19:00	8	0	4	5	22	62	107	24	4	0	0	0	0	0	236	45	48
20:00	3	0	7	8	11	85	96	24	2	0	0	0	0	0	236	44	47
21:00	0	1	1	3	8	54	46	11	7	0	0	0	0	0	131	45	50
22:00	0	0	0	0	2	11	23	5	2	1	0	0	0	0	44	46	51
23:00	0	0	1	0	1	5	10	4	4	1	0	0	0	0	26	51	55
Total	168	17	69	110	268	1550	2386	583	56	9	1	2	1	0	5220		
Percent	3.2%	0.3%	1.3%	2.1%	5.1%	29.7%	45.7%	11.2%	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	03:00	08:00	09:00	08:00	08:00	08:00	07:00	09:00	08:00	05:00	03:00	08:00		08:00		
Vol.	14	1	7	15	52	209	268	79	5	2	1	1	1		604		
PM Peak	17:00	12:00	16:00	17:00	16:00	17:00	17:00	16:00	21:00	12:00		13:00			17:00		
Vol.	25	3	10	14	25	120	197	43	7	1		1			417		

All Traffic Data

6401 Lake Washington Blvd SE
Newcastle, WA 98056
425-228-0072
www.alltrafficdata.net

Site Code: 2
Date Start: 28-Jul-15
NEWPORT WAY NW E/O NW PACIFIC ELM DR
Station ID: 2
Date End: 30-Jul-15

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
07/29/15	0	0	0	0	0	0	6	2	1	0	0	0	0	0	9	49	52
01:00	0	0	0	0	0	3	3	2	0	0	0	0	0	0	8	47	49
02:00	0	0	0	1	0	0	1	1	0	0	0	0	0	0	3	47	49
03:00	0	0	0	0	0	1	1	2	0	1	0	0	0	0	5	56	58
04:00	1	1	0	0	1	5	4	2	1	0	0	0	0	0	15	46	51
05:00	2	0	1	1	2	7	10	4	0	0	0	0	0	0	27	45	48
06:00	2	1	1	1	6	43	111	33	3	0	0	0	0	0	201	46	49
07:00	7	1	0	6	3	111	299	59	7	0	0	0	0	0	493	45	48
08:00	13	1	15	9	15	155	287	34	2	0	0	0	0	0	531	44	46
09:00	11	4	7	5	18	115	175	38	4	1	0	0	0	0	378	45	48
10:00	3	0	9	8	5	54	128	48	2	0	0	0	0	0	257	46	49
11:00	5	1	2	7	12	68	125	26	1	1	0	0	0	0	248	45	47
12 PM	9	3	1	8	16	100	103	20	2	0	0	0	0	0	262	44	47
13:00	6	1	2	4	16	85	124	22	4	0	0	0	0	0	264	44	47
14:00	11	1	5	3	20	62	131	25	4	0	0	0	0	0	262	45	48
15:00	11	0	2	3	4	105	136	21	2	1	0	0	0	0	285	44	47
16:00	16	1	6	5	15	101	148	43	2	0	0	0	0	0	337	45	48
17:00	24	5	12	13	10	99	158	53	4	0	0	0	0	0	378	45	48
18:00	15	0	3	11	14	92	139	32	6	2	0	0	0	0	314	45	48
19:00	6	0	4	5	17	90	75	34	2	0	1	0	0	0	234	45	48
20:00	9	1	5	10	17	76	96	20	2	0	0	0	0	0	236	44	47
21:00	1	1	2	2	11	32	64	10	4	0	0	0	0	0	127	45	48
22:00	2	0	2	0	3	17	25	13	3	1	1	0	0	0	67	47	52
23:00	0	0	0	2	2	6	17	4	2	1	1	0	0	0	35	48	56
Total	154	22	79	104	207	1427	2366	548	58	8	3	0	0	0	4976		
Percent	3.1%	0.4%	1.6%	2.1%	4.2%	28.7%	47.5%	11.0%	1.2%	0.2%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	08:00	08:00	09:00	08:00	07:00	07:00	07:00	03:00					08:00		
Vol.	13	4	15	9	18	155	299	59	7	1					531		
PM Peak	17:00	17:00	17:00	17:00	14:00	15:00	17:00	17:00	18:00	18:00	19:00				17:00		
Vol.	24	5	12	13	20	105	158	53	6	2	1				378		

All Traffic Data

6401 Lake Washington Blvd SE
Newcastle, WA 98056
425-228-0072
www.alltrafficdata.net

Site Code: 2
Date Start: 28-Jul-15
NEWPORT WAY NW E/O NW PACIFIC ELM DR
Station ID: 2
Date End: 30-Jul-15

WB

Start Time	15	1620	2125	2630	3135	3640	4145	4650	5155	5660	6165	6670	7175	76999	Total	85th Percent	95th Percent
07/30/15	0	1	1	0	2	4	10	3	2	0	0	0	0	0	23	47	52
01:00	0	0	0	0	0	4	1	1	0	0	0	0	0	0	6	45	48
02:00	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	39	40
03:00	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	58	60
04:00	1	1	1	0	1	1	4	0	1	1	0	0	0	0	11	50	56
05:00	0	0	0	1	3	5	12	8	3	1	0	0	0	0	33	49	54
06:00	9	1	3	0	4	33	118	36	5	0	0	0	0	0	209	46	49
07:00	10	1	4	8	13	119	260	69	4	1	0	0	0	0	489	45	48
08:00	11	1	6	4	28	186	254	47	2	0	0	0	0	0	539	44	47
09:00	14	3	16	6	20	133	134	33	1	1	0	0	0	0	361	44	47
10:00	7	1	3	7	7	59	138	41	4	0	0	0	0	0	267	45	49
11:00	8	0	4	6	22	69	112	41	1	1	0	0	0	0	264	45	48
12 PM	11	0	1	3	10	100	131	30	2	0	0	0	0	0	288	44	47
13:00	12	0	1	2	14	81	120	19	3	0	0	0	0	0	252	44	47
14:00	9	3	2	3	2	79	127	25	6	2	0	0	0	0	258	45	49
15:00	11	1	2	3	17	97	136	33	3	0	0	0	0	0	303	45	48
16:00	19	3	8	10	12	91	163	44	5	1	0	0	0	0	356	45	48
17:00	30	2	2	8	24	75	176	44	7	1	0	0	0	0	369	45	48
18:00	21	7	0	4	11	87	135	29	1	0	0	0	0	0	295	44	47
19:00	4	6	7	17	14	92	97	26	1	1	0	0	0	0	265	44	47
20:00	3	1	7	11	11	94	76	18	1	0	0	0	0	0	222	44	47
21:00	2	1	6	3	13	56	70	13	1	0	0	0	0	0	165	44	47
22:00	1	0	2	3	8	27	30	13	2	1	0	0	0	0	87	46	49
23:00	0	0	0	0	2	4	17	6	3	1	1	0	0	0	34	50	56
Total	183	33	76	99	239	1499	2321	579	58	13	1	0	0	0	5101		
Percent	3.6%	0.6%	1.5%	1.9%	4.7%	29.4%	45.5%	11.4%	1.1%	0.3%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	09:00	09:00	07:00	08:00	08:00	07:00	07:00	06:00	03:00					08:00		
Vol.	14	3	16	8	28	186	260	69	5	1					539		
PM Peak	17:00	18:00	16:00	19:00	17:00	12:00	17:00	16:00	17:00	14:00	23:00				17:00		
Vol.	30	7	8	17	24	100	176	44	7	2	1				369		
Grand Total	505	72	224	313	714	4476	7073	1710	172	30	5	2	1	0	15297		
Percent	3.3%	0.5%	1.5%	2.0%	4.7%	29.3%	46.2%	11.2%	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 34 MPH
50th Percentile : 40 MPH
85th Percentile : 45 MPH
95th Percentile : 48 MPH

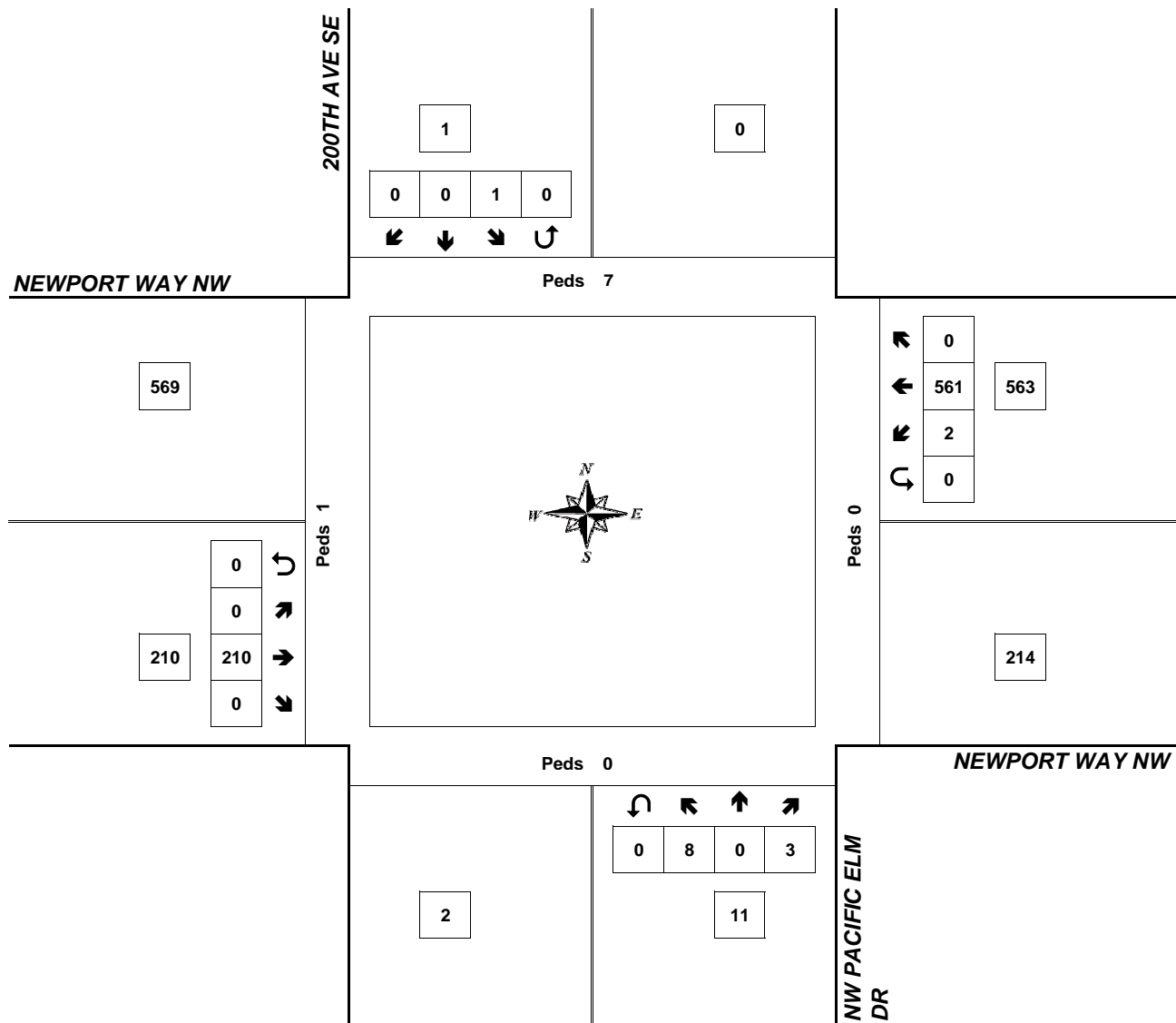
Statistics
10 MPH Pace Speed : 37-46 MPH
Number in Pace : 10334
Percent in Pace : 67.6%
Number of Vehicles > 40 MPH : 8993
Percent of Vehicles > 40 MPH : 58.8%
Mean Speed(Average) : 39 MPH



All Traffic Data
Services Inc.

Site ID: 4

7:45 AM to 8:45 AM
Wednesday, July 29, 2015



Approach	PHF	HV%	Volume
EB	0.78	2.4%	210
WB	0.90	2.3%	563
NB	0.69	0.0%	11
SB	0.25	100.0%	1
Intersection	0.93	2.4%	785

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



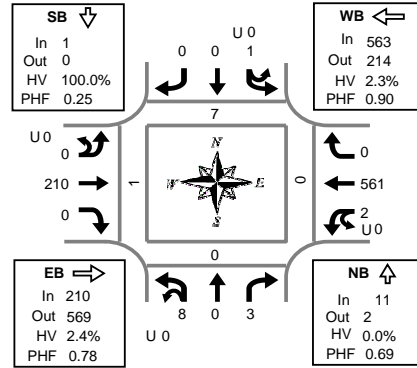
Eric Boivin
(303) 668-0220

Site ID: 4

NW PACIFIC ELM DR & NEWPORT WAY NW

Wednesday, July 29, 2015

7:00 AM to 9:00 AM



Peak Hour Summary
7:45 AM to 8:45 AM

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Interval Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		North	South	East	West
7:00 AM	0	1	0	0	0	0	0	0	0	0	31	0	0	1	82	0	115	0	0	0	0
7:15 AM	0	4	0	0	0	0	0	0	0	0	32	2	0	0	136	0	174	3	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	39	0	0	0	132	0	172	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	57	0	0	0	139	0	197	1	0	0	0
8:00 AM	0	3	0	1	0	0	0	0	0	0	37	0	0	0	156	0	197	0	0	0	0
8:15 AM	0	2	0	1	0	1	0	0	0	0	49	0	0	0	128	0	181	2	0	0	1
8:30 AM	0	2	0	1	0	0	0	0	0	0	67	0	0	2	138	0	210	4	0	0	0
8:45 AM	0	3	0	0	0	0	0	0	0	0	80	0	0	0	111	0	194	2	0	0	0
Total Survey	0	17	0	3	0	1	0	0	0	0	392	2	0	3	1,022	0	1,440	12	0	0	1

Peak Hour Summary

7:45 AM to 8:45 AM

By Approach	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	11	2	13	0	1	0	1	1	210	569	779	5	563	214	777	13	785	7	0	0	1
%HV	0.0%				100.0%				2.4%				2.3%				2.4%				
PHF	0.69				0.25				0.78				0.90				0.93				

By Movement	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Total
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Volume	0	8	0	3	0	1	0	0	0	0	210	0	0	2	561	0	785
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	#####	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	50.0%	2.1%	0.0%	2.4%
PHF	0.00	0.67	0.00	0.75	0.00	0.25	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.25	0.90	0.00	0.93

Rolling Hour Summary

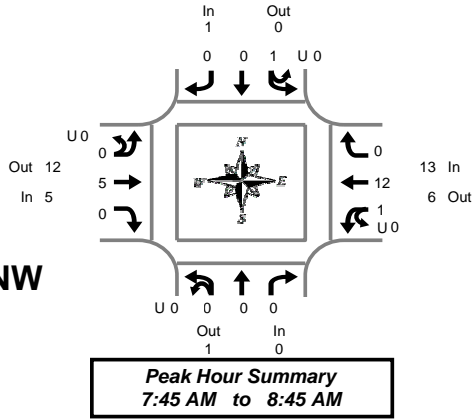
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Interval Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		North	South	East	West
7:00 AM	0	7	0	0	0	0	0	0	0	0	159	2	0	1	489	0	658	4	0	0	0
7:15 AM	0	9	0	1	0	0	0	0	0	0	165	2	0	0	563	0	740	4	0	0	0
7:30 AM	0	7	0	2	0	1	0	0	0	0	182	0	0	0	555	0	747	3	0	0	1
7:45 AM	0	8	0	3	0	1	0	0	0	0	210	0	0	2	561	0	785	7	0	0	1
8:00 AM	0	10	0	3	0	1	0	0	0	0	233	0	0	2	533	0	782	8	0	0	1

Heavy Vehicle Summary



Eric Boivin
(303) 668-0220



NW PACIFIC ELM DR & NEWPORT WAY NW

Wednesday, July 29, 2015

7:00 AM to 9:00 AM

15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Interval Total
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	3	0	3	5
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1	3
8:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	1	3	0	4	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	1	0	1	4
Total Survey	0	0	0	0	0	0	1	0	0	1	0	0	10	0	10	0	1	16	0	17	0

Peak Hour Summary

7:45 AM to 8:45 AM

By Approach	Northbound NW PACIFIC ELM DR			Southbound 200TH AVE SE			Eastbound NEWPORT WAY NW			Westbound NEWPORT WAY NW			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	1	1	1	0	1	5	12	17	13	6	19	19

By Movement	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Total
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	
Volume	0	0	0	0	0	0	1	0	0	1	0	0	5	0	5	0	1	12	0	13	19

Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Interval Total
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	10	0	10	12
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	11	0	11	15
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	0	0	9	0	9	13
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	5	0	5	0	1	12	0	13	19
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	8	0	8	0	1	6	0	7	16

Peak Hour Summary

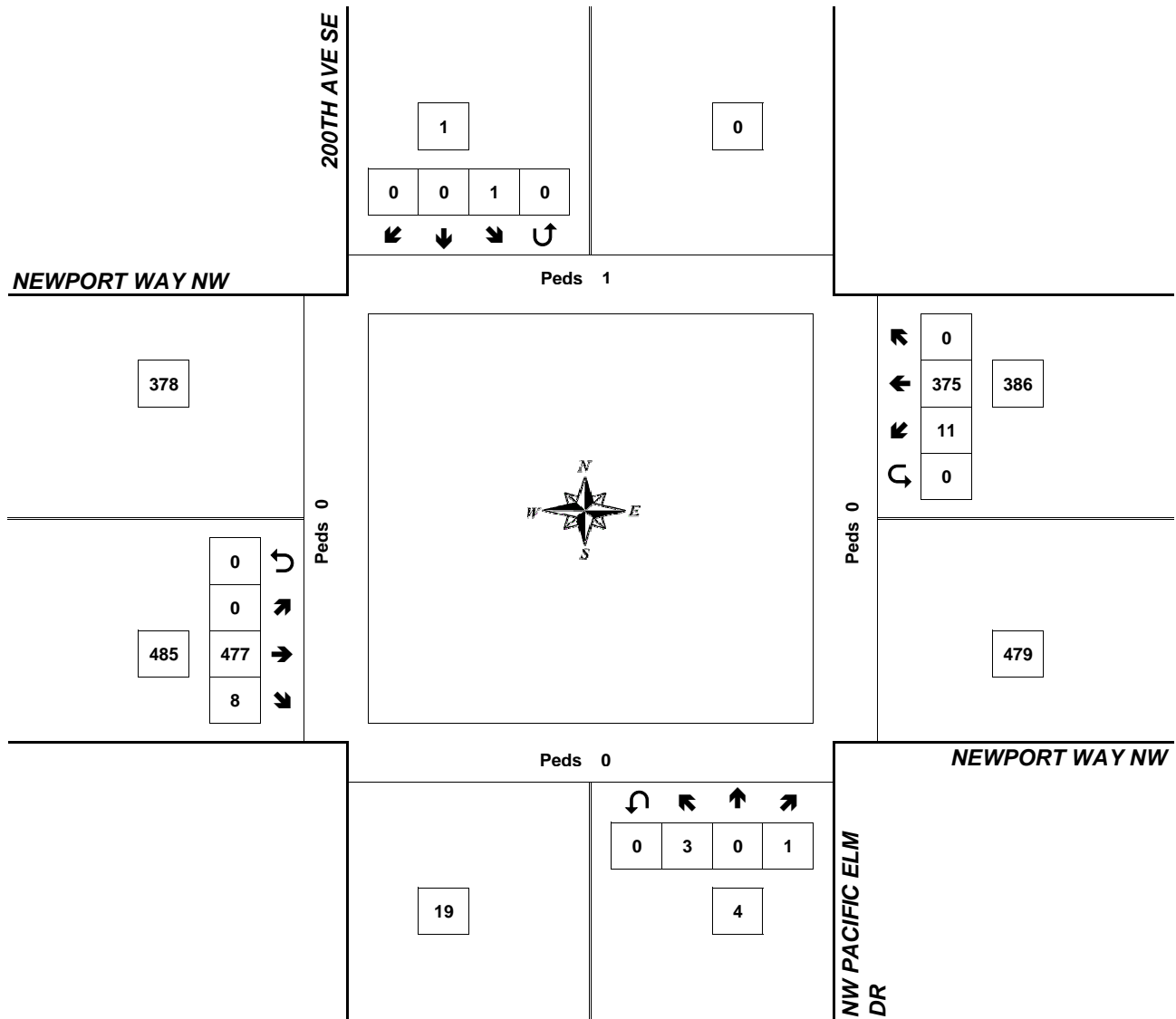
Site ID: 4



Eric Boivin
(303) 668-0220

NW PACIFIC ELM DR & NEWPORT WAY NW

5:00 PM to 6:00 PM
Wednesday, July 29, 2015



Approach	PHF	HV%	Volume
EB	0.84	1.6%	485
WB	0.86	0.8%	386
NB	0.33	0.0%	4
SB	0.25	0.0%	1
Intersection	0.86	1.3%	876

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



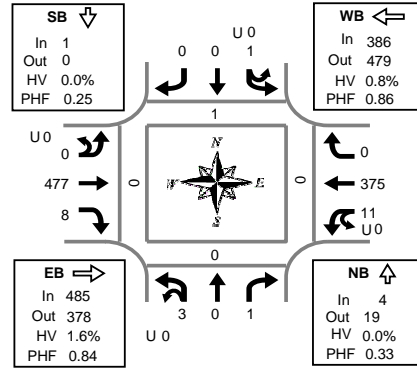
Eric Boivin
(303) 668-0220

Site ID: 4

NW PACIFIC ELM DR & NEWPORT WAY NW

Wednesday, July 29, 2015

4:00 PM to 6:00 PM



Peak Hour Summary 5:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Interval Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		North	South	East	West
4:00 PM	0	2	0	0	0	0	0	0	0	0	107	2	0	1	86	0	198	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	1	0	0	118	1	0	2	86	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	116	2	0	2	90	0	210	1	0	0	0
4:45 PM	0	0	0	2	0	0	0	0	0	0	126	2	0	2	76	0	208	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	103	3	0	1	91	0	199	1	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	142	2	0	3	109	0	256	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	125	2	0	5	71	0	203	0	0	0	0
5:45 PM	0	3	0	0	0	1	0	0	0	0	107	1	0	2	104	0	218	0	0	0	0
Total Survey	0	7	0	3	0	1	0	1	0	0	944	15	0	18	713	0	1,702	2	0	0	0

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	4	19	23	0	1	0	1	0	485	378	863	8	386	479	865	3	876	1	0	0	0
%HV	0.0%				0.0%				1.6%				0.8%				1.3%				
PHF	0.33				0.25				0.84				0.86				0.86				

By Movement	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Total
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Volume	0	3	0	1	0	1	0	0	0	0	477	8	0	11	375	0	876
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.8%	0.0%	1.3%
PHF	0.00	0.25	0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.84	0.67	0.00	0.55	0.86	0.00	0.86

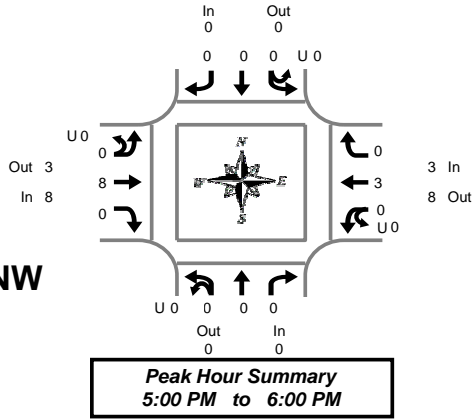
Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound NW PACIFIC ELM DR				Southbound 200TH AVE SE				Eastbound NEWPORT WAY NW				Westbound NEWPORT WAY NW				Interval Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		North	South	East	West
4:00 PM	0	4	0	2	0	0	0	1	0	0	467	7	0	7	338	0	826	1	0	0	0
4:15 PM	0	2	0	3	0	0	0	1	0	0	463	8	0	7	343	0	827	2	0	0	0
4:30 PM	0	0	0	3	0	0	0	0	0	0	487	9	0	8	366	0	873	2	0	0	0
4:45 PM	0	0	0	3	0	0	0	0	0	0	496	9	0	11	347	0	866	1	0	0	0
5:00 PM	0	3	0	1	0	1	0	0	0	0	477	8	0	11	375	0	876	1	0	0	0

Heavy Vehicle Summary



Eric Boivin
(303) 668-0220



NW PACIFIC ELM DR & NEWPORT WAY NW

Wednesday, July 29, 2015

4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Interval Total
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	4	4	0	0	0	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	1	0	1	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total Survey	0	0	0	0	0	0	0	0	1	1	0	0	14	1	15	0	0	3	0	3	2

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound NW PACIFIC ELM DR			Southbound 200TH AVE SE			Eastbound NEWPORT WAY NW			Westbound NEWPORT WAY NW			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	8	3	11	3	8	11	11

By Movement	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Total
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	
Volume	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	0	3	0	3	11

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound NW PACIFIC ELM DR					Southbound 200TH AVE SE					Eastbound NEWPORT WAY NW					Westbound NEWPORT WAY NW					Interval Total	
	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total	U	L	T	R	Total		
4:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	6	1	7	0	0	0	0	0	8
4:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	9	0	9	0	0	1	0	1	11
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	0	1	0	1	9
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	0	3	0	3	10
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	0	0	3	0	3	11

24-Hour Volume Summary - Newport Way NW / NW Pacific Elm Drive

Existing Year = 2015

Future Year = 2018

% Growth = 0%

Seasonality Factor = 10%

Time	Tuesday 7/28/15				Wednesday 7/29/15				Thursday 7/30/15				2015 Existing - 3 Day Average					2015 Existing w/ Seasonality Factor				
	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	Total Entering Volume	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	Total Entering Volume
12:00 AM	9	15	0	0	14	9	0	0	15	23	0	0	13	16	0	0	28	14	17	0	0	31
1:00 AM	5	4	0	0	7	8	0	0	6	6	0	0	6	6	0	0	12	7	7	0	0	13
2:00 AM	2	4	0	0	5	3	0	0	5	3	0	0	4	3	0	0	7	4	4	0	0	8
3:00 AM	5	5	0	0	1	5	0	0	1	2	0	0	2	4	0	0	6	3	4	0	0	7
4:00 AM	3	11	0	0	5	15	0	0	10	11	0	0	6	12	0	0	18	7	14	0	0	20
5:00 AM	24	35	0	0	21	27	0	0	27	33	0	0	24	32	0	0	56	26	35	0	0	61
6:00 AM	68	205	0	0	79	201	0	0	77	209	0	0	75	205	0	0	280	82	226	0	0	308
7:00 AM	156	540	0	0	158	493	0	0	152	489	0	0	155	507	0	0	663	171	558	0	0	729
8:00 AM	214	604	0	0	228	531	0	0	247	539	0	0	230	558	0	0	788	253	614	0	0	866
9:00 AM	218	461	0	0	206	378	0	0	234	361	0	0	219	400	0	0	619	241	440	0	0	681
10:00 AM	199	214	0	0	167	257	0	0	191	267	0	0	186	246	0	0	432	204	271	0	0	475
11:00 AM	218	257	0	0	210	248	0	0	249	264	0	0	226	256	0	0	482	248	282	0	0	530
12:00 PM	200	284	0	0	219	262	0	0	236	288	0	0	218	278	0	0	496	240	306	0	0	546
1:00 PM	233	259	0	0	250	264	0	0	248	252	0	0	244	258	0	0	502	268	284	0	0	552
2:00 PM	268	257	0	0	285	262	0	0	269	258	0	0	274	259	0	0	533	301	285	0	0	586
3:00 PM	367	317	0	0	397	285	0	0	392	303	0	0	385	302	0	0	687	424	332	0	0	756
4:00 PM	467	363	0	0	465	337	0	0	470	356	0	0	467	352	0	0	819	514	387	0	0	901
5:00 PM	464	417	0	0	474	378	0	0	615	369	0	0	518	388	0	0	906	569	427	0	0	996
6:00 PM	422	295	0	0	425	314	0	0	533	295	0	0	460	301	0	0	761	506	331	0	0	837
7:00 PM	204	236	0	0	229	234	0	0	342	265	0	0	258	245	0	0	503	284	270	0	0	554
8:00 PM	136	236	0	0	157	236	0	0	136	222	0	0	143	231	0	0	374	157	254	0	0	412
9:00 PM	97	131	0	0	119	127	0	0	92	165	0	0	103	141	0	0	244	113	155	0	0	268
10:00 PM	39	44	0	0	69	67	0	0	51	87	0	0	53	66	0	0	119	58	73	0	0	131
11:00 PM	38	26	0	0	32	35	0	0	32	34	0	0	34	32	0	0	66	37	35	0	0	72
TOTAL	4,056	5,220	0	0	4,222	4,976	0	0	4,630	5,101	0	0	4,303	5,099	0	0	9,402	4,733	5,609	0	0	10,342

	Project Trip Assignment				Total Entering Volume
	EB (Newport Way)	WB (Newport Way)	NB	SB (Site Access)	
12:00 AM	0	0	0	0	0
1:00 AM	0	0	0	0	0
2:00 AM	0	0	0	0	0
3:00 AM	0	0	0	0	0
4:00 AM	0	0	0	0	0
5:00 AM	0	0	0	0	0
6:00 AM	0	0	0	76	76
7:00 AM	0	0	0	119	119
8:00 AM	0	0	0	121	121
9:00 AM	0	0	0	86	86
10:00 AM	0	0	0	73	73
11:00 AM	0	0	0	76	76
12:00 PM	0	0	0	70	70
1:00 PM	0	0	0	76	76
2:00 PM	0	0	0	78	78
3:00 PM	0	0	0	83	83
4:00 PM	0	0	0	83	83
5:00 PM	0	0	0	86	86
6:00 PM	0	0	0	68	68
7:00 PM	0	0	0	65	65
8:00 PM	0	0	0	45	45
9:00 PM	0	0	0	30	30
10:00 PM	0	0	0	90	90
11:00 PM	0	0	0	0	0
TOTAL	0	0	0	1,325	1,325

	Trips =	1,325
%	Trips	
	0	
	0	
	0	
	0	
	0	
	0	
5.7%	76	
9.0%	119	
9.1%	121	
6.5%	86	
5.5%	73	
5.7%	76	
5.3%	70	
5.7%	76	
5.9%	78	
6.3%	83	
6.3%	83	
6.5%	86	
5.1%	68	
4.9%	65	
3.4%	45	
2.3%	30	
10pm-6am	6.8%	90
	100.00%	1,325






















ATTACHMENT B

LOS Analysis Results

Lanes, Volumes, Timings

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	245	0	2	655	16	8	0	3	63	0	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	12	10	12	11	11	11	11	11	11
Storage Length (ft)	100		50	100		100	0		0	0		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		789			651			281			301	
Travel Time (s)		13.4			11.1			7.7			8.2	
Confl. Peds. (#/hr)	7					7				7		7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other






















Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	25	245	0	2	655	16	8	0	3	63	0	100
Conflicting Peds, #/hr	7	0	0	0	0	7	0	0	0	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	50	100	-	100	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	1	1	1
Mvmt Flow	27	263	0	2	704	17	9	0	3	68	0	108
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	711	0	0	263	0	0	1086	1033	270	1035	1033	718
Stage 1	-	-	-	-	-	-	317	317	-	716	716	-
Stage 2	-	-	-	-	-	-	769	716	-	319	317	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	888	-	-	1301	-	-	196	234	774	211	233	431
Stage 1	-	-	-	-	-	-	698	658	-	423	436	-
Stage 2	-	-	-	-	-	-	397	437	-	695	656	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	884	-	-	1295	-	-	142	225	770	203	224	427
Mov Cap-2 Maneuver	-	-	-	-	-	-	142	225	-	203	224	-
Stage 1	-	-	-	-	-	-	677	638	-	408	433	-
Stage 2	-	-	-	-	-	-	295	434	-	668	636	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0			26			22.1		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	183	884	-	-	1295	-	-	203	427			
HCM Lane V/C Ratio	0.065	0.03	-	-	0.002	-	-	0.334	0.252			
HCM Control Delay (s)	26	9.2	-	-	7.8	-	-	31.4	16.2			
HCM Lane LOS	D	A	-	-	A	-	-	D	C			
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	1.4	1			

Lanes, Volumes, Timings

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	245	0	2	655	16	8	0	3	63	0	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	12	10	12	11	11	11	11	11	11
Storage Length (ft)	100		50	100		100	0		0	0		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		789			651			281			301	
Travel Time (s)		13.4			11.1			7.7			8.2	
Confl. Peds. (#/hr)	7					7						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	30.0	30.0		30.0	30.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	

Intersection Summary

Area Type: Other





Cycle Length: 60

Actuated Cycle Length: 37.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated






















Splits and Phases: 1: NW Pacific Elm Drive/Site Access & Newport Way NW

 02	 04
30 s	30 s
 06	 08
30 s	30 s

HCM 2010 Signalized Intersection Summary

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	245	0	2	655	16	8	0	3	63	0	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	27	263	0	2	704	17	9	0	3	68	0	108
Adj No. of Lanes	1	1	1	1	1	1	0	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	0	0	0	1	1	1
Cap, veh/h	417	976	829	740	976	824	289	29	34	460	0	214
Arrive On Green	0.52	0.52	0.00	0.52	0.52	0.52	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	727	1863	1583	1107	1863	1573	547	217	255	1422	0	1599
Grp Volume(v), veh/h	27	263	0	2	704	17	12	0	0	68	0	108
Grp Sat Flow(s),veh/h/ln	727	1863	1583	1107	1863	1573	1018	0	0	1422	0	1599
Q Serve(g_s), s	0.9	2.3	0.0	0.0	8.5	0.2	0.0	0.0	0.0	0.0	0.0	1.8
Cycle Q Clear(g_c), s	9.3	2.3	0.0	2.3	8.5	0.2	1.8	0.0	0.0	1.0	0.0	1.8
Prop In Lane	1.00		1.00	1.00		1.00	0.75		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	417	976	829	740	976	824	352	0	0	460	0	214
V/C Ratio(X)	0.06	0.27	0.00	0.00	0.72	0.02	0.03	0.00	0.00	0.15	0.00	0.50
Avail Cap(c_a), veh/h	658	1594	1355	1107	1594	1346	1342	0	0	1486	0	1368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	3.9	0.0	4.5	5.3	3.3	11.1	0.0	0.0	11.4	0.0	11.8
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.2	1.2	0.0	0.0	4.2	0.1	0.1	0.0	0.0	0.5	0.0	0.9
LnGrp Delay(d),s/veh	8.9	3.9	0.0	4.5	5.7	3.4	11.1	0.0	0.0	11.4	0.0	12.4
LnGrp LOS	A	A		A	A	A	B			B		B
Approach Vol, veh/h	290				723		12				176	
Approach Delay, s/veh	4.4				5.6		11.1				12.1	
Approach LOS	A				A		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	8.9		20.3		8.9		20.3					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	25.0		25.0		25.0		25.0					
Max Q Clear Time (g_c+I1), s	3.8		11.3		3.8		10.5					
Green Ext Time (p_c), s	0.5		3.5		0.5		3.6					
Intersection Summary												
HCM 2010 Ctrl Delay			6.3									
HCM 2010 LOS			A									

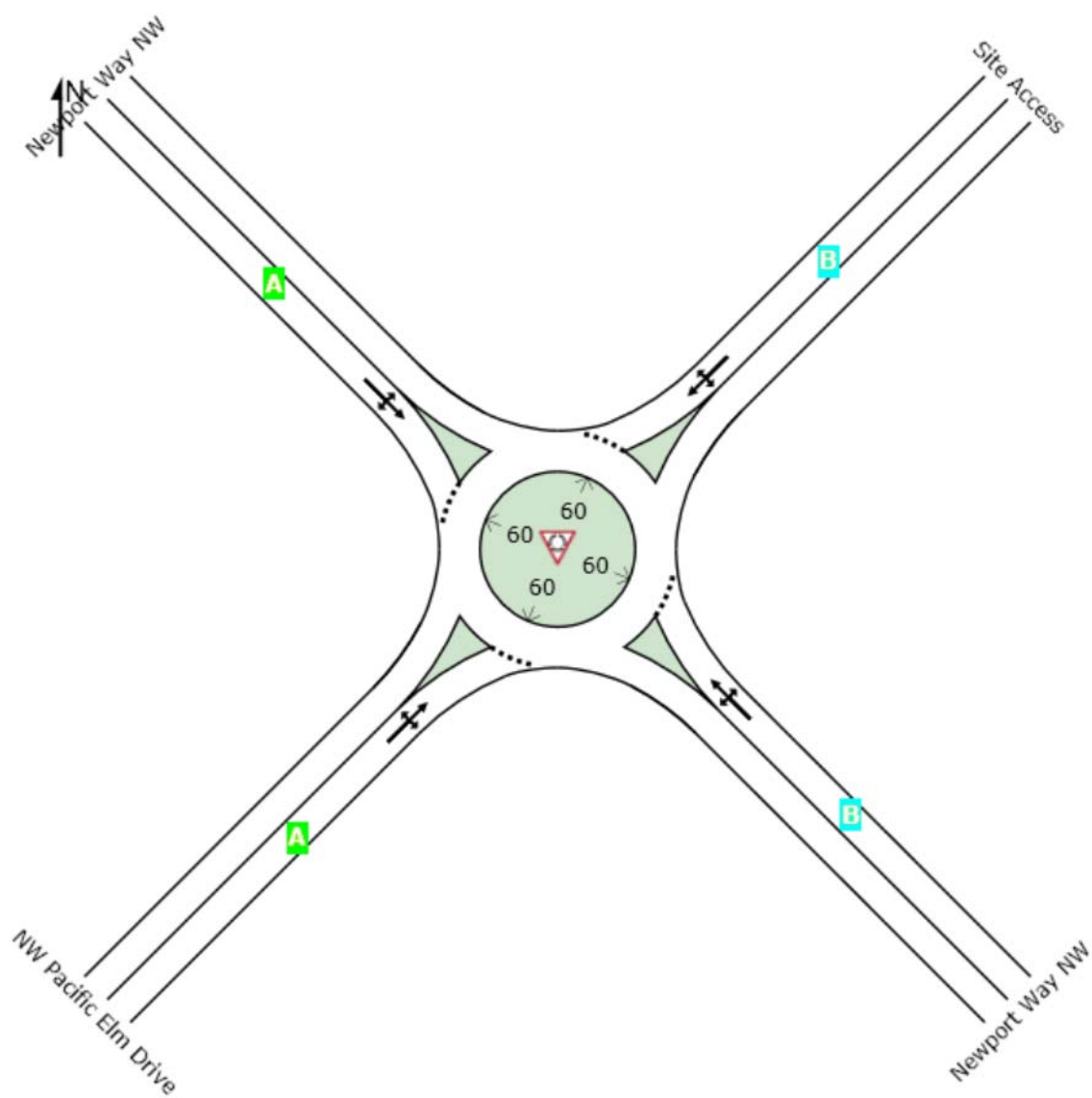
LEVEL OF SERVICE

 **Site: Issaquah Gateway - 2018 With Project - AM Peak Hour**

New Site
Roundabout

All Movement Classes

	Southeast	Northeast	Northwest	Southwest	Intersection
LOS	B	B	A	A	B



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY



Site: Issaquah Gateway - 2018 With Project - AM Peak Hour

New Site
Roundabout

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
SouthEast: Newport Way NW													
Lane 1 ^d	724	2.3	1064	0.680	100	13.6	LOS B	6.2	158.2	Full	1600	0.0	0.0
Approach	724	2.3		0.680		13.6	LOS B	6.2	158.2				
NorthEast: Site Access													
Lane 1 ^d	176	1.0	538	0.328	100	11.6	LOS B	1.3	31.9	Full	1600	0.0	0.0
Approach	176	1.0		0.328		11.6	LOS B	1.3	31.9				
NorthWest: Newport Way NW													
Lane 1 ^d	291	2.4	1027	0.284	100	6.3	LOS A	1.3	31.9	Full	1600	0.0	0.0
Approach	291	2.4		0.284		6.3	LOS A	1.3	31.9				
SouthWest: NW Pacific Elm Drive													
Lane 1 ^d	13	0.0	784	0.016	100	4.8	LOS A	0.1	1.4	Full	1600	0.0	0.0
Approach	13	0.0		0.016		4.8	LOS A	0.1	1.4				
Intersection	1204	2.1		0.680		11.5	LOS B	6.2	158.2				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

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Organisation: TENW | Processed: Monday, August 17, 2015 3:20:06 PM

Project: T:\Active Projects\Issaquah Gateway Apts - 4917\Planning - 4917\LOS\Issaquah Gateway Apartments - Site Access Analysis.sip6

Lanes, Volumes, Timings

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	557	9	12	438	84	3	0	1	46	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	12	10	12	11	11	11	11	11	11
Storage Length (ft)	100		50	100		100	0		0	0		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		789			651			281			301	
Travel Time (s)		13.4			11.1			7.7			8.2	
Confl. Peds. (#/hr)	1					1				1		1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other






















Control Type: Unsignalized

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	77	557	9	12	438	84	3	0	1	46	0	41
Conflicting Peds, #/hr	1	0	0	0	0	1	0	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	50	100	-	100	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0	0	0	0
Mvmt Flow	90	648	10	14	509	98	3	0	1	53	0	48
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	510	0	0	648	0	0	1389	1365	649	1365	1365	511
Stage 1	-	-	-	-	-	-	827	827	-	538	538	-
Stage 2	-	-	-	-	-	-	562	538	-	827	827	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1055	-	-	943	-	-	121	149	473	126	149	567
Stage 1	-	-	-	-	-	-	369	389	-	531	526	-
Stage 2	-	-	-	-	-	-	515	526	-	369	389	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1054	-	-	942	-	-	102	134	473	116	134	566
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	134	-	116	134	-
Stage 1	-	-	-	-	-	-	337	356	-	485	518	-
Stage 2	-	-	-	-	-	-	464	518	-	336	356	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.2			34.4			37.4		
HCM LOS							D			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	127	1054	-	-	942	-	-	116	566			
HCM Lane V/C Ratio	0.037	0.085	-	-	0.015	-	-	0.461	0.084			
HCM Control Delay (s)	34.4	8.7	-	-	8.9	-	-	60.2	11.9			
HCM Lane LOS	D	A	-	-	A	-	-	F	B			
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	2	0.3			

Lanes, Volumes, Timings

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	557	9	12	438	84	3	0	1	46	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	12	12	10	12	11	11	11	11	11	11
Storage Length (ft)	100		50	100		100	0		0	0		0
Storage Lanes	1		1	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		789			651			281			301	
Travel Time (s)		13.4			11.1			7.7			8.2	
Confl. Peds. (#/hr)	1					1				1		1
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	30.0	30.0		30.0	30.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	None		None	None	

Intersection Summary

Area Type: Other





Cycle Length: 60

Actuated Cycle Length: 30.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated






















Splits and Phases: 1: NW Pacific Elm Drive/Site Access & Newport Way NW

 02	 04
30 s	30 s
 06	 08
30 s	30 s

HCM 2010 Signalized Intersection Summary

1: NW Pacific Elm Drive/Site Access & Newport Way NW

8/17/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	77	557	9	12	438	84	3	0	1	46	0	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1881	1881	1881	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	90	648	10	14	509	98	3	0	1	53	0	48
Adj No. of Lanes	1	1	1	1	1	1	0	1	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	0	0	0
Cap, veh/h	550	979	832	479	989	840	315	29	37	427	0	168
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.10	0.00	0.10	0.10	0.00	0.10
Sat Flow, veh/h	810	1863	1582	780	1881	1597	787	278	355	1439	0	1611
Grp Volume(v), veh/h	90	648	10	14	509	98	4	0	0	53	0	48
Grp Sat Flow(s),veh/h/ln	810	1863	1582	780	1881	1597	1420	0	0	1439	0	1611
Q Serve(g_s), s	2.2	6.8	0.1	0.4	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.7
Cycle Q Clear(g_c), s	6.9	6.8	0.1	7.2	4.8	0.8	0.7	0.0	0.0	0.7	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	0.75		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	550	979	832	479	989	840	381	0	0	427	0	168
V/C Ratio(X)	0.16	0.66	0.01	0.03	0.51	0.12	0.01	0.00	0.00	0.12	0.00	0.29
Avail Cap(c_a), veh/h	874	1724	1464	791	1741	1479	1553	0	0	1609	0	1491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	4.7	3.1	7.3	4.2	3.2	10.9	0.0	0.0	11.2	0.0	11.2
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.5	3.5	0.0	0.1	2.4	0.4	0.0	0.0	0.0	0.4	0.0	0.3
LnGrp Delay(d),s/veh	6.5	4.9	3.1	7.3	4.3	3.3	10.9	0.0	0.0	11.2	0.0	11.5
LnGrp LOS	A	A	A	A	A	A	B			B		B
Approach Vol, veh/h		748			621			4			101	
Approach Delay, s/veh		5.1			4.2			10.9			11.4	
Approach LOS		A			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		7.8		19.2		7.8		19.2				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		25.0		25.0		25.0		25.0				
Max Q Clear Time (g_c+I1), s		2.7		8.9		2.7		9.2				
Green Ext Time (p_c), s		0.2		5.0		0.2		4.9				
Intersection Summary												
HCM 2010 Ctrl Delay			5.2									
HCM 2010 LOS			A									

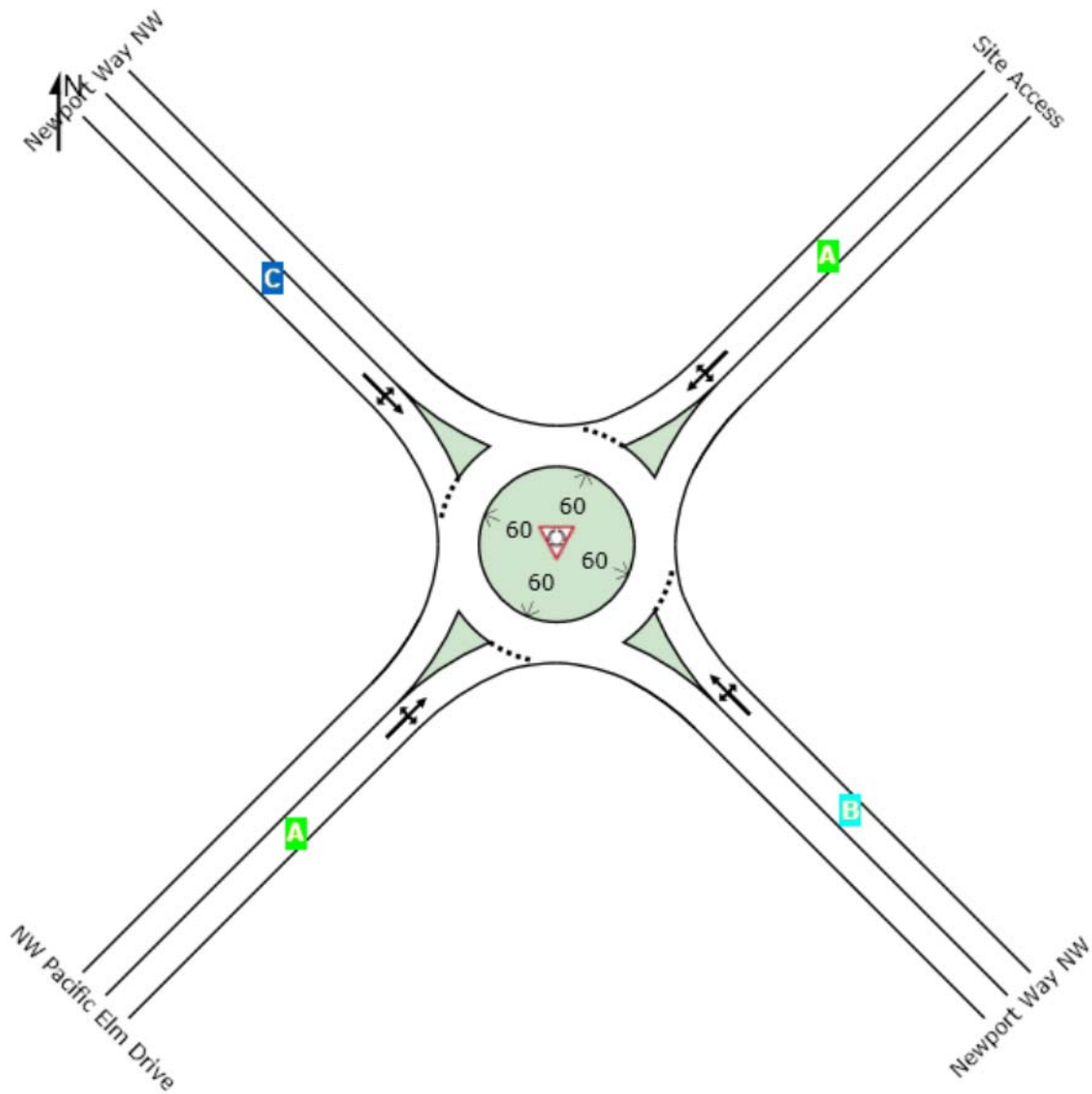
LEVEL OF SERVICE

 **Site: Issaquah Gateway - 2018 With Project - PM Peak Hour**

New Site
Roundabout

All Movement Classes

	Southeast	Northeast	Northwest	Southwest	Intersection
LOS	B	A	C	A	B



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY



Site: Issaquah Gateway - 2018 With Project - PM Peak Hour

New Site
Roundabout

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
SouthEast: Newport Way NW													
Lane 1 ^d	621	0.8	1019	0.609	100	11.9	LOS B	4.5	113.1	Full	1600	0.0	0.0
Approach	621	0.8		0.609		11.9	LOS B	4.5	113.1				
NorthEast: Site Access													
Lane 1 ^d	102	0.0	664	0.154	100	7.2	LOS A	0.5	13.7	Full	1600	0.0	0.0
Approach	102	0.0		0.154		7.2	LOS A	0.5	13.7				
NorthWest: Newport Way NW													
Lane 1 ^d	748	1.6	1038	0.720	100	15.4	LOS C	7.0	178.0	Full	1600	0.0	0.0
Approach	748	1.6		0.720		15.4	LOS C	7.0	178.0				
SouthWest: NW Pacific Elm Drive													
Lane 1 ^d	6	0.0	506	0.011	100	7.2	LOS A	0.0	0.9	Full	1600	0.0	0.0
Approach	6	0.0		0.011		7.2	LOS A	0.0	0.9				
Intersection	1477	1.1		0.720		13.4	LOS B	7.0	178.0				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

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Organisation: TENW | Processed: Monday, August 17, 2015 3:22:31 PM

Project: T:\Active Projects\Issaquah Gateway Apts - 4917\Planning - 4917\LOS\Issaquah Gateway Apartments - Site Access Analysis.sip6

ATTACHMENT C

Signal Warrant Analysis Results

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 1 - Eight Hour Vehicular Volume
Condition A - Minimum Vehicular Volume

Hour Begins	Minor Approach Future Site Access Highest NB/SB (2)	Major Approach Newport Way Total EB & WB (2)	MUTCD (1) Warrant 1A
6:00	76	308	
7:00	119	729	
8:00	121	867	
9:00	86	681	
10:00	73	475	
11:00	76	530	
12:00	70	546	
13:00	76	552	
14:00	78	586	
15:00	83	756	
16:00	83	901	
17:00	86	996	
18:00	68	837	
19:00	65	554	
WARRANT MET (3) =			NO

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Three-day average of 24-hour volumes conducted on 7/28, 7/29, and 7/30, 2015.

(3) Signal warrant satisfied when traffic volumes exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition A: Minimum Vehicular Volume

Minimum volume of 350 vehicles per hour on 1-lane major street (both approaches)
and 140 vehicles per hour on 2-lane minor street approach.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 1 - Eight Hour Vehicular Volume
Condition B - Interruption of Continuous Traffic

Hour Begins	Minor Approach Future Site Access Highest NB/SB (2)	Major Approach Newport Way Total EB & WB (2)	MUTCD (1) Warrant 1B
6:00	76	308	
7:00	119	729	YES
8:00	121	867	YES
9:00	86	681	YES
10:00	73	475	
11:00	76	530	YES
12:00	70	546	YES
13:00	76	552	YES
14:00	78	586	YES
15:00	83	756	YES
16:00	83	901	YES
17:00	86	996	YES
18:00	68	837	
19:00	65	554	
WARRANT MET (3) =			YES

Notes:

- (1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.
- (2) Three-day average of 24-hour volumes conducted on 7/28, 7/29, and 7/30, 2015.
- (3) Signal warrant satisfied when traffic volumes exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1, Condition B: Interruption of Continuous Traffic

Minimum volume of 525 vehicles per hour on 1-lane major street (both approaches)
and 70 vehicles per hour on 2-lane minor street approach.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

**Warrant 1 - Eight Hour Vehicular Volume
Combination of Condition A and Condition B**

Hour Begins	Minor Approach Future Site Access Highest NB/SB (2)	Major Approach Newport Way Total EB & WB (2)	MUTCD (1)		
			Warrant 1 A/B	56% Condition A	56% Condition B
6:00	76	308			
7:00	119	729	YES	YES	YES
8:00	121	867	YES	YES	YES
9:00	86	681			YES
10:00	73	475			YES
11:00	76	530			YES
12:00	70	546			YES
13:00	76	552			YES
14:00	78	586			YES
15:00	83	756			YES
16:00	83	901			YES
17:00	86	996			YES
18:00	68	837			YES
19:00	65	554			YES

WARRANT MET (3) = NO

Notes:

- (1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.
- (2) Three-day average of 24-hour volumes conducted on 7/28, 7/29, and 7/30, 2015.
- (3) Signal warrant satisfied when traffic volumes exist for each of any 8 hours of an average day.

MUTCD Warrant Requirements

Warrant 1: Combination of A and B

The combination of warrants is satisfied where Condition A and Condition B are satisfied to the extent of 56 percent or more of the stated values.

NOTE:

This combination warrant only applies after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 2 - Four Hour Vehicular Volume

Hour Begins	Minor Approach Future Site Access Highest NB/SB (2)	Major Approach Newport Way Total EB & WB (2)	MUTCD (1) Warrant 2
6:00	76	308	YES
7:00	119	729	
8:00	121	867	
9:00	86	681	
10:00	73	475	
11:00	76	530	
12:00	70	546	
13:00	76	552	
14:00	78	586	
15:00	83	756	
16:00	83	901	
17:00	86	996	
18:00	68	837	
17:00	65	554	

WARRANT MET (3) =

NO

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Three-day average of 24-hour volumes conducted on 7/28, 7/29, and 7/30, 2015.

(3) Signal warrant satisfied when traffic volumes exist for each of any 4 hours of an average day.

MUTCD Warrant Requirements

Warrant 2: Four Hour Vehicular Volume

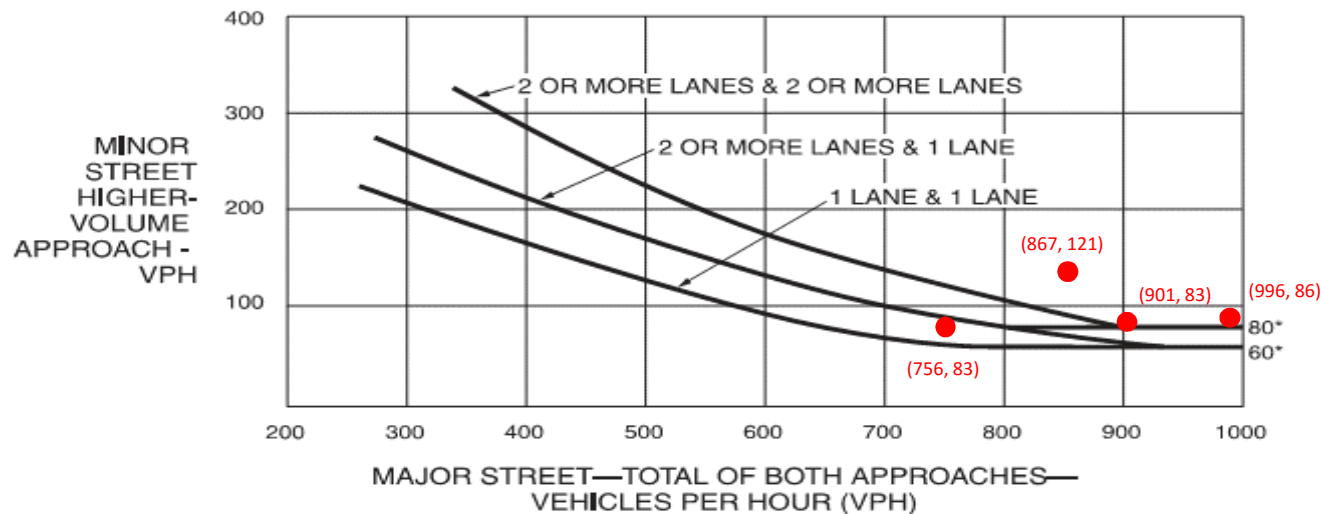
The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the applicable curve in Figure 4C-2 for the existing combination of approach lanes.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 2 - Four Hour Vehicular Volume

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

WARRANT MET (2) = NO

Notes:

- (1) The four highest hourly minor/major approach volumes as shown in the data for Warrant 1.
- (2) The signal warrant is satisfied when the conditions given below exist for each of any 4 hours of an average day.

MUTCD Warrant Requirements

Warrant 2: Four Hour Vehicular Volume

The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the applicable curve in Figure 4C-2 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 3 - Peak Hour (AM Peak Hour)

Condition A

This warrant is met if all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach

Newport Way / Future Site Access, SB approach (2 lanes)

Control Delay (sec/veh) =	20.4	sec/veh
Stopped Delay (sec/veh) =	15.7	sec/veh
Total Volume (veh/hr) =	163	veh/hour
Vehicle-Hours =	0.71	veh-hours

**Based on results from HCM 2010 analysis

CONDITION 1 MET = **NO**

2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.

Newport Way / Future Site Access, SB approach volume =

163

CONDITION 2 MET = **YES**

3. The total entering volume serviced during the hour equals or exceeds 650 vehicle per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

Newport Way / Future Site Access, Total volume =

1,065

CONDITION 3 MET = **YES**

WARRANT MET = **NO**

NOTE:

This signal warrant shall only be applied in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 3 - Peak Hour (PM Peak Hour)

Condition A

This warrant is met if all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach

Newport Way / Future Site Access, SB approach (2 lanes)

Control Delay (sec/veh) =	33.0	sec/veh
Stopped Delay (sec/veh) =	25.4	sec/veh
Total Volume (veh/hr) =	87	veh/hour
Vehicle-Hours =	0.61	veh-hours

**Based on results from HCM 2010 analysis

CONDITION 1 MET = **NO**

2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes.

Newport Way / Future Site Access, SB approach volume =

87

CONDITION 2 MET = **NO**

3. The total entering volume serviced during the hour equals or exceeds 650 vehicle per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

Newport Way / Future Site Access, Total volume =

1,211

CONDITION 3 MET = **YES**

WARRANT MET = **NO**

NOTE:

This signal warrant shall only be applied in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

**Warrant 3 - Peak Hour
Condition B**

Hour Begins	Minor Approach Rd R NW / 13th Ave SW Highest NB/SB (2)	Major Approach SR-28 Total EB & WB (2)	MUTCD (1)
			Warrant 3
6:00	76	308	NO
7:00	119	729	
8:00	121	867	
9:00	86	681	
10:00	73	475	
11:00	76	530	
12:00	70	546	
13:00	76	552	
14:00	78	586	
15:00	83	756	
16:00	83	901	
17:00	86	996	
18:00	68	837	
19:00	65	554	
WARRANT MET (3) =			NO

Notes:

(1) MUTCD - Manual on Uniform Traffic Control Devices, 2009.

(2) Three-day average of 24-hour volumes conducted on 7/28, 7/29, and 7/30, 2015.

(3) Signal warrant satisfied when traffic volumes exist for one hour of an average day.

MUTCD Warrant Requirements

Warrant 3: Peak Hour - Condition B

The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4C-4 for the existing combination of approach lanes.

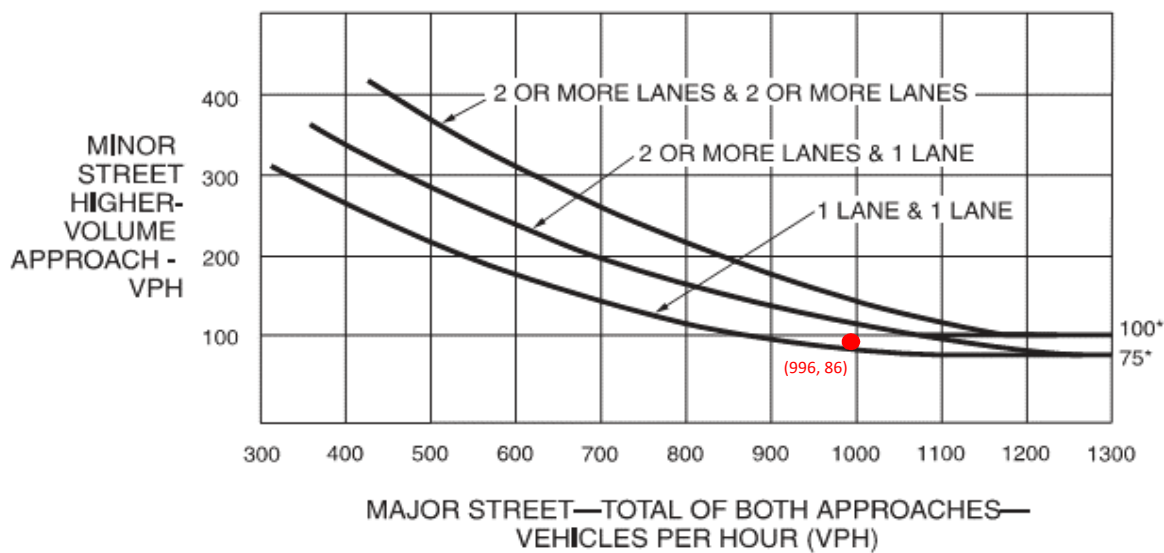
NOTE:

This signal warrant shall only be applied in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

Signal Warrant Analysis for Newport Way / NW Pacific Elm Drive / Site Access
2018 With Project

Warrant 3 - Peak Hour
Condition B

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

WARRANT MET (2) = NO

Notes:

- (1) The highest hourly minor/major approach volumes as shown in the data for Warrant 1.
- (2) The signal warrant is satisfied when the conditions given below exist for one hour of an average day.

MUTCD Warrant Requirements

Warrant 3: Peak Hour - Condition B

The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor street approach (one direction only) for 1 hour of an average day falls above the applicable curve in Figure 4C-4 for the existing combination of approach lanes.

NOTE:

This signal warrant shall only be applied in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.